

***Evaluation and Certification of Revised SRD
ABAR-W375-00-00010***

1. This revision involves the modification of several ISMP sections that are identified as implementing standards in the following SRD Safety Criteria:

SRD Safety Criterion	ISMP Reference
1.0-1	Ch. 5.0
1.0-9	Ch. 1.0
3.1-8	Ch. 8.0
4.2-3	§ 1.3.10
4.5-15	§ 1.3.9
4.5-16	Ch. 10.0
4.5-17	Ch. 8.0
4.5-18	Ch. 10.0
7.0-1	§ 1.3.13
7.1-2	§ 5.2
7.1-3	§ 1.3.13
7.1-3	Ch. 10.0
7.2-4	Ch. 8.0
7.2-8	§ 5.2
7.6-3	§ 1.3.10
7.6-3	Ch. 10.0
7.6-4	§ 1.3.11
7.7-2	Ch. 8.0
7.7-9	§ 5.2
7.8-1	Ch. 8.0
9.1-5	Ch. 8.0
9.2-6	Ch. 8.0
9.3-1	Ch. 5.0
9.3-2	Ch. 5.0
9.3-3	Ch. 5.0
9.3-4	Ch. 5.0
9.3-5	Ch. 5.0

2. This revision also involves a modification to SRD Vol. II, Appendix B, *Implementing Standard for Defense in Depth*, which replaces the specific reference to QAPIP Rev. 4 with a general reference to the QAPIP.
3. This revision also replaces various ISMP sections that were previously identified as implementing standards for SRD Safety Criteria 7.3-1 through 7.3-11 with the applicable sections of DOE G-830.120-REV. 0, *Implementation Guide for use with 10 CFR Part 830.120, Quality Assurance*, April 15, 1994, as tailored for RPP-WTP. This revision also deletes ISMP section 3.3.3 that was previously identified as the implementing standard for SRD Safety Criterion 7.3-12.

An evaluation that demonstrates that the SRD will continue to identify a set of standards that will provide adequate safety, comply with all applicable laws and regulations, and conform to top-level safety standards is required. This determination must be certified.

Evaluation

DOE G-830.120-REV. 0 was identified by a multi-discipline team consisting of the following:

Name	Title	Department
Gale Voyles	Quality Assurance Mgr.	QA
Ian Wheeler	Operational Safety Mgr.	Operations
Kim Auclair	Design Integration Mgr.	Tech. & Engrg.
Maurice Higuera	Safety Implementation Engineer	ES&H
Tom McDonnell	Regulatory Safety Engineer	ES&H

Adequate Safety

- Modification of the ISMP sections that are identified as implementing standards in the SRD Safety Criteria listed above does not challenge adequate safety for the following reasons:

SRD Safety Criterion	ISMP Reference	Justification
1.0-1	Ch. 5.0	SRD Safety Criterion is concerned with the radiological and process safety management program. The only change to ISMP Chapter 5.0 is a revision to ISMP section 5.2, which requires that subcontractors submit their quality plans to Project QA for evaluation and cross-references the QAP for a description of how procurement is controlled to ensure conformance with specified requirements. This revision does not reduce any commitment related to the radiological and process safety management program, nor does it reduce the effectiveness of that program.
1.0-9	Ch. 1.0	SRD Safety Criterion 1.0-9 requires that: "BNFL Inc. shall accept ultimate responsibility for the safety of the TWRS-P facility." Although SRD Safety Criterion 1.0-9 cites ISMP <u>Chapter</u> 1.0 as the implementing standard for this criterion, in reality, ISMP <u>Section</u> 1.0 addresses this criterion. This revision does not impact ISMP section 1.0.
3.1-8	Ch. 8.0	SRD Safety Criterion 3.1-8 requires retention of process hazards analysis documentation for the life of the process. The change to ISMP Chapter 8.0 updates the revision to the QAP and deletes a reference to the ISAR for details on the records management program. ISMP Table 8-1 (which is not being changed by this revision), "Safety Management Records," lists the types of Integrated Safety Analysis, Radiological Safety, Nuclear Criticality Safety and Chemical Safety records that will be managed. This revision does not reduce the commitment in SRD Safety Criterion 3.1-8.
4.2-3	§ 1.3.10	SRD Safety Criterion 4.2-3 is concerned with supplementation of codes and standards for vessels and piping. The changes to ISMP section 1.3.10 are not related to supplementation of codes and standards for vessels and piping.
4.5-15	§ 1.3.9	SRD Safety Criterion 4.5-15 addresses the fire protection program. ISMP section 1.3.9 is invoked as the implementing

SRD Safety Criterion	ISMP Reference	Justification
		standard for quality assurance related to the fire protection program, specifically personnel qualification and training. The substantive change to ISMP § 1.3.9 clarifies that the QAP itself describes the process by which management and independent assessments are conducted, as well as the qualification of personnel who perform the assessments. This change has no impact on qualification and training of fire protection personnel.
4.5-16	Ch. 10.0	The revision to ISMP sections 10.1 and 10.2 adds cross-references to the QAP discussions of management assessments and independent assessments, respectively. Nothing has been deleted from ISMP Chapter 10.0. Therefore, this revision has no impact on SRD Safety Criterion 4.5-16.
4.5-17	Ch. 8.0	SRD Safety Criterion 3.1-8 is concerned with documentation of fire protection requirements. The change to ISMP Chapter 8.0 updates the revision to the QAP and deletes a reference to the ISAR for details on the records management program. ISMP Table 8-1 (which is not being changed by this revision), “Safety Management Records,” lists the types of Integrated Safety Analysis records that will be managed, including the Fire Hazard Analysis. ISMP Table 8-1 (which is not being changed by this revision), also lists the types of Fire Safety records that will be managed. This revision does not reduce the commitment in SRD Safety Criterion 4.5-17.
4.5-18	Ch. 10.0	The revision to ISMP sections 10.1 and 10.2 adds cross-references to the QAP discussions of management assessments and independent assessments, respectively. Nothing has been deleted from ISMP Chapter 10.0. Therefore, this revision has no impact on SRD Safety Criterion 4.5-18.
7.0-1	§ 1.3.13	SRD Safety Criterion 7.0-1 requires: “Normal operations shall be conducted in accordance with approved operational safety requirements and in strict accordance with administrative and procedural controls.” The revision to ISMP section 1.3.13 deletes a cross-reference to ISMP section 1.3.11, “Quality Levels.” This change has no impact on conduct of normal operations.
7.1-2	§ 5.2	SRD Safety Criterion 7.1-2 requires that prospective subcontractors’ safety programs be obtained and their safety performance be evaluated. The revision to ISMP section 5.2 requires that subcontractors submit their quality plans to Project QA for evaluation and cross-references the QAP for a description of how procurement is controlled to ensure conformance with specified requirements. The portion of ISMP section 5.2 dealing with subcontractors’ safety programs is not

SRD Safety Criterion	ISMP Reference	Justification
		being changed.
7.1-3	§ 1.3.13	SRD Safety Criterion 7.1-3 is concerned with independence of safety review organizations and qualification of internal safety oversight personnel. The revision to ISMP section 1.3.13 deletes a cross-reference to ISMP section 1.3.11, "Quality Levels." This change has no impact on safety review and oversight.
7.1-3	Ch. 10.0	The revision to ISMP sections 10.1 and 10.2 adds cross-references to the QAP discussions of management assessments and independent assessments, respectively. Nothing has been deleted from ISMP Chapter 10.0. Therefore, this revision has no impact on SRD Safety Criterion 7.1-3.
7.2-4	Ch. 8.0	SRD Safety Criterion 7.2-4 addresses training records. The change to ISMP Chapter 8.0 updates the revision to the QAP and deletes a reference to the ISAR for details on the records management program. ISMP Table 8-1 (which is not being changed by this revision), "Safety Management Records," lists the types of records that will be managed, including training records. This revision does not reduce the commitment in SRD Safety Criterion 7.2-4.
7.2-8	§ 5.2	SRD Safety Criterion addresses safe work practices and is applicable to employees and subcontractors. The revision to ISMP section 5.2 requires that subcontractors submit their quality plans to Project QA for evaluation and cross-references the QAP for a description of how procurement is controlled to ensure conformance with specified requirements. The portion of ISMP section 5.2 dealing with subcontractors' safe work practices is not being changed.
7.6-3	§ 1.3.10	SRD Safety Criterion 7.6-3 is concerned with the maintenance program for important to safety SSCs. The relevant portion of SC 7.6-3 requires clear definition of the important to safety SSCs that comprise the facility. The revision to ISMP section 1.3.10 removes references to Quality Levels, which are already contained in the QAP; however, the portion of ISMP § 1.3.10 dealing with definition of important to safety SSCs is unchanged.
7.6-4	§ 1.3.11	SRD Safety Criterion 7.6-4 requires that the maintenance program address several listed elements. The element most directly related to ISMP section 1.3.11, "Quality Levels," is procurement of parts, materials and services, because consideration of the Quality Level of SSCs must be reflected in procurement documents. The revision to ISMP section 1.3.11 removes the discussion of the application of Quality Levels, providing a cross-reference to the comparable treatment

SRD Safety Criterion	ISMP Reference	Justification
		contained in the QAP. This change retains the requirement that Quality Levels be assigned in a graded manner to ensure that appropriate QA requirements are applied to specific SSCs; therefore, this change has no impact on procurement of parts, materials and services.
7.7-2	Ch. 8.0	SRD Safety Criterion 7.7-2 is concerned with incident investigation and reporting. The change to ISMP Chapter 8.0 updates the revision to the QAP and deletes a reference to the ISAR for details on the records management program. ISMP Table 8-1 (which is not being changed by this revision), "Safety Management Records," lists the types of Radiological Safety and Chemical Safety records that will be managed, including incident reports. Similarly, Table 8-1 lists incident reports to support decommissioning. This revision does not reduce the commitment in SRD Safety Criterion 7.7-2.
7.7-9	§ 5.2	SRD Safety Criterion 7.7-9 addresses deficiency reporting by subcontractors and suppliers. The revision to ISMP section 5.2 requires that subcontractors submit their quality plans to Project QA for evaluation and cross-references the QAP for a description of how procurement is controlled to ensure conformance with specified requirements. The portion of ISMP section 5.2 dealing with suppliers' and subcontractors' deficiency reporting procedures is not being changed.
7.8-1	Ch. 8.0	SRD Safety Criterion 7.8-1 addresses the emergency response program. The change to ISMP Chapter 8.0 updates the revision to the QAP and deletes a reference to the ISAR for details on the records management program. ISMP Table 8-1 (which is not being changed by this revision), "Safety Management Records," lists the types of Radiological Safety and Chemical Safety records that will be managed, including incident reports. This revision does not reduce the commitment in SRD Safety Criterion 7.2-4.
9.1-5	Ch. 8.0	SRD Safety Criterion 9.1-5 requires that the SAR be maintained as a controlled document. The change to ISMP Chapter 8.0 updates the revision to the QAP and deletes a reference to the ISAR for details on the records management program. ISMP Table 8-1 (which is not being changed by this revision), "Safety Management Records," lists the types of Authorization Basis records that will be managed, including the PSAR and FSAR. ISMP Table 8-1 also lists the types of Integrated Safety Analysis records that will be managed, including the ISAR. This revision does not reduce the commitment in SRD Safety Criterion 9.1-5.
9.2-6	Ch. 8.0	SRD Safety Criterion 9.2-6 requires, in part, that technical safety requirements be maintained as a controlled document.

SRD Safety Criterion	ISMP Reference	Justification
		The change to ISMP Chapter 8.0 updates the revision to the QAP and deletes a reference to the ISAR for details on the records management program. ISMP Table 8-1 (which is not being changed by this revision), "Safety Management Records," lists the types of Authorization Basis records that will be managed, including Technical Safety Requirements. This revision does not reduce the commitment in SRD Safety Criterion 9.2-6.
9.3-1	Ch. 5.0	SRD Safety Criterion 9.3-1 describes the content of the risk management plan (RMP) that is to be submitted to the EPA. Although SRD Safety Criterion 9.3-1 cites ISMP <u>Chapter 5.0</u> as the implementing standard for this criterion, in reality, ISMP <u>Section 5.0</u> addresses this criterion. This revision does not impact ISMP section 5.0.
9.3-2	Ch. 5.0	SRD Safety Criterion 9.3-2 describes the review and update of the risk management plan (RMP). Although SRD Safety Criterion 9.3-2 cites ISMP <u>Chapter 5.0</u> as the implementing standard for this criterion, in reality, ISMP <u>Section 5.0</u> addresses this criterion. This revision does not impact ISMP section 5.0.
9.3-3	Ch. 5.0	SRD Safety Criterion 9.3-3 provides requirements related to offsite consequences analyses to be contained in the risk management plan (RMP). Although SRD Safety Criterion 9.3-3 cites ISMP <u>Chapter 5.0</u> as the implementing standard for this criterion, in reality, ISMP <u>Section 5.0</u> addresses this criterion. This revision does not impact ISMP section 5.0.
9.3-4	Ch. 5.0	SRD Safety Criterion 9.3-4 provides requirements related to records of offsite consequences analyses to be contained the risk management plan (RMP). Although SRD Safety Criterion 9.3-4 cites ISMP <u>Chapter 5.0</u> as the implementing standard for this criterion, in reality, ISMP <u>Section 5.0</u> addresses this criterion. This revision does not impact ISMP section 5.0.
9.3-5	Ch. 5.0	SRD Safety Criterion 9.3-5 provides requirements related to review and updating of offsite consequences analyses to be contained the risk management plan (RMP). Although SRD Safety Criterion 9.3-5 cites ISMP <u>Chapter 5.0</u> as the implementing standard for this criterion, in reality, ISMP <u>Section 5.0</u> addresses this criterion. This revision does not impact ISMP section 5.0.

- Inasmuch as the change to SRD Vol. II, Appendix B, which replaces the specific reference to QAPIP Rev. 4 with a general reference to the QAPIP, is actually an editorial change that is being made to avoid the need to revise revision-specific references in one AB document to another, no further evaluation is necessary. That part of this revision does not challenge adequate safety.

3. For the third part of this revision – selection of DOE G-830.120-REV. 0 as the implementing standard for SRD Safety Criteria 7.3-1 through 7.3-11 and deletion of the implementing standard for SRD Safety Criterion 7.-12 – adequate safety was demonstrated through a comparison with the existing safety criteria for quality assurance, the RU evaluation of the safety criteria contained in DOE/RL-98-01 and DOE/RL-98-20, the RU evaluation of the ISMP sections contained in DOE/RL-98-03, and the RU evaluation of the initial safety analysis contained in DOE/RL-98-09.

The RU reviewed the original safety criteria and reported the results of the review in RL/REG-98-01. The conclusions of the review were that BNFL had established safety criteria (including SC 7.3-1 through 7.3-12) that provided a commitment to full compliance with 10CFR 830.120. DOE/RL-98-20 did not provide any evaluation of these safety criteria. Since DOE G-830.120-REV. 0 is DOE's own guidance for implementing quality assurance, and since the existing QAPIP was developed using that guidance, selection of DOE G-830.120-REV. 0 does not challenge the RU's approval of the affected safety criteria.

Compliance with All Applicable Laws and Regulations

Inasmuch as DOE G-830.120-REV. 0, is the DOE's own guide for implementation of 10 CFR Part 830.120, its selection by BNFL Inc. as an implementing standard necessarily complies with the applicable regulation 10 CFR 830.120.

Conformance to Top-Level Safety Standards

4.1.6.1 Quality Assurance Application

Quality assurance and quality control should be applied throughout all phases and to all activities associated with the facility as part of a comprehensive system to ensure with high confidence that all items delivered and services and tasks performed meet required standards.

Evaluation: The introduction to the *Implementation Plan for River Protection Project – Waste Treatment Plant Quality Assurance Program* (Appendix A to QAPIP Rev. 4C) states:

“The current Quality Assurance Program (QAP) and the Implementation Plan address the criteria stipulated by the Quality Assurance (QA) Rule (10 *Code of Federal Regulations* [CFR] Part 830.120), the companion guidance to the rule, *Implementation Guide for use with 10 CFR 830.120 Quality Assurance* (G-830.120, Rev. 0), as well as the QA principles stipulated by the U.S Department of Energy (DOE) in *Top-Level Radiological, Nuclear, and Process Safety Standards and Principles for Tank Waste Remediation System-Privatization (TWRS-P) Contractors...*”

DOE G-830.120-REV. 0 addresses each of the ten QA program aspects of 10 CFR Part 830.120, thus providing comprehensive guidance for all quality-related project activities. Inasmuch as the current QAPIP was developed using DOE G-830.120-REV. 0, selection of DOE G-830.120-REV. 0 maintains conformance with top-level principle 4.1.6.1.

4.1.1.6 Human Aspects

The human aspects of defense in depth should include a design for human factors, a quality assurance program, administrative controls, internal safety reviews, operating limits (Technical Safety Requirements), worker qualification and training, and the establishment of a safety/quality program.

Evaluation: SRD Volume II, Appendix B, section 2.6 addresses the human aspects of defense in depth, including quality assurance, citing the QAP. Since the existing QAPIP was developed using the guidance of DOE G-830.120-REV. 0, selection of this implementing standard maintains conformance with top-level principle 4.1.1.6.

4.1.6.2 Established Techniques and Procedures

The Contractor should use well proven and established techniques and procedures supported by quality assurance practices to provide high quality equipment and achieve high quality construction.

Evaluation: DOE G-830.120-REV. 0 is a well-proven and established guidance document for implementing quality assurance at the DOE regulated nuclear facilities; therefore, its selection as an implementing standard maintains conformance with top-level principle 4.1.6.2.

4.1.6.3 Operational Quality Assurance Programs

Operational quality assurance and control programs should be established by the Contractor to assist in ensuring satisfactory performance in facility activities important to safety.

Evaluation: DOE G-830.120-REV. 0 was developed for DOE nuclear facilities, most of which were already operational when the guidance document was issued (in 1994). Therefore, it is applicable to operational quality assurance, and its selection maintains conformance with top-level principle 4.1.6.3.

Evaluation Against Applicable Safety Criteria

Safety Criterion: 7.3 - 1

The following quality assurance elements shall be applied using a graded approach:

- (1) Quality Assurance Program*
- (2) Personnel Training and Qualification,*
- (3) Quality Improvement,*
- (4) Documents and Records,*
- (5) Work Processes,*
- (6) Design,*
- (7) Procurement,*
- (8) Inspection and Acceptance Testing,*
- (9) Management Assessment, and*
- (10) Independent Assessment.*

Evaluation: DOE G-830.120-REV. 0, as tailored by BNFL Inc., provides guidance on the application of all 10 quality assurance elements. Section I.1.3 endorses use of a graded approach.

Safety Criterion: 7.3 - 2

A written Quality Assurance Program (QAP) shall be developed, implemented, and maintained. The QAP shall describe the organizational structure, functional responsibilities, levels of authority, and interfaces for those managing, performing, and assessing the work. The QAP shall describe management processes, including planning, scheduling, and resource considerations.

Evaluation: Sections I, II, III and IV.1 of DOE G-830.120-REV. 0, as tailored by BNFL Inc., provide guidance on development, implementation, and maintenance of a written QAP and on the elements of a written QAP listed above.

Safety Criterion: 7.3 - 3

Personnel shall be trained and qualified to ensure they are capable of performing their assigned work. Personnel shall be provided continuing training to ensure that job proficiency is maintained.

Evaluation: Section IV.2 of DOE G-830.120-REV. 0, as tailored by BNFL Inc., provides guidance on personnel training and qualification.

Safety Criterion: 7.3 - 4

Documents shall be prepared, reviewed, approved, issued, used, and revised to prescribe processes, specify requirements, or establish design. Records shall be specified, prepared, reviewed, approved, and maintained.

Evaluation: Section IV.4 of DOE G-830.120-REV. 0, as tailored by BNFL Inc., provides guidance on these aspects of document and records management. In addition, section IV.6.4 addresses preparation of design output documents, as well as document control and records management.

Safety Criterion: 7.3 - 5

Work shall be performed to established technical standards and administrative controls using approved instructions, procedures, or other appropriate means. Items shall be identified and controlled to ensure their proper use. Items shall be maintained to prevent their damage, loss, or deterioration. Equipment used for process monitoring or data collection shall be calibrated and maintained.

Evaluation: Section IV.5 of DOE G-830.120-REV. 0, as tailored by BNFL Inc., provides guidance on work processes.

Safety Criterion: 7.3 - 6

Processes to detect and prevent quality problems shall be established and implemented. Items, services, and processes that do not meet established requirements shall be identified, controlled, and corrected. Correction shall include identifying the causes of problems and preventing recurrence. Item characteristics, process implementation, and other quality-related information shall be reviewed and the data analyzed to identify items, services, and processes needing improvement.

Evaluation: Section IV.3 of DOE G-830.120-REV. 0, as tailored by BNFL Inc., provides guidance on quality improvement, including problem prevention and corrective action.

Safety Criterion: 7.3 - 7

Inspection and testing of specified items, services, and processes shall be conducted using established acceptance and performance criteria. Equipment used for inspections and tests shall be calibrated and maintained.

Evaluation: Section IV.8 of DOE G-830.120-REV. 0, as tailored by BNFL Inc., provides guidance on inspection and acceptance testing.

Safety Criterion: 7.3 - 8

Managers shall assess their management processes. Problems that hinder the organization from achieving its objectives shall be identified and corrected.

Evaluation: Section IV.9 of DOE G-830.120-REV. 0, as tailored by BNFL Inc., provides guidance on management assessment.

Safety Criterion: 7.3 - 9

Independent assessment shall be planned and conducted to measure item and service quality, to measure the adequacy of work performance, and to promote improvement. The group performing independent assessments shall have sufficient authority and freedom from the line to carry out its responsibilities. Persons conducting independent assessments shall be technically qualified and knowledgeable in the areas assessed.

Evaluation: Section IV.10 of DOE G-830.120-REV. 0, as tailored by BNFL Inc., provides guidance on independent assessment.

Safety Criterion: 7.3 - 10

Compliance audits shall be performed at least every three years to verify that the procedures and practices developed to ensure nuclear and process safety are adequate and are being followed. The compliance audit shall be conducted by at least one person knowledgeable in the process. A report of the findings of the audit shall be developed. An appropriate response shall be determined and documented for each of the findings of the compliance audit, and it shall be documented when deficiencies have been corrected. Employers shall retain the two most recent compliance audit reports.

Evaluation: Sections IV.4 and IV.10 of DOE G-830.120-REV. 0, as tailored by BNFL Inc., provide guidance on the performance and documentation aspects of audits.

Safety Criterion: 7.3 - 11

Procured items and services shall meet established requirements and perform as specified. Prospective suppliers shall be evaluated and selected on the basis of specified criteria. Processes to ensure that approved suppliers continue to provide acceptable items and services shall be established and implemented.

Evaluation: Section IV.7 of DOE G-830.120-REV. 0, as tailored by BNFL Inc., provides guidance on procurement and supplier quality assurance.

Safety Criterion: 7.3 - 12

Changes made to the Quality Assurance Program (QAP) shall be submitted annually to the regulator for review. The submittal shall identify the changes, the pages affected, the reason for the changes, and the basis for concluding that the revised QAP continues to satisfy the requirements of this section.

Evaluation: The Regulatory Basis for this Safety Criterion is DOE 830.120, section (b)(3). The words in DOE 830.120, section (b)(3) are identical to those in ISMP section 3.3.3. Furthermore, the language in ISMP section 3.3.3 is not being changed. Therefore, there is no need to cite an implementing standard for this safety criterion. It should be noted that the RU Evaluation Report of Revision 0 of the SRD states that the reviewers determined that the safety criteria in SRD Vol. II, Section 7.3 other than SC 7.3-1 and 7.3-5 “provide adequate subordinate standards to describe the implementation of the relevant top-level principles”. In SRD Rev. 0, these safety criteria did not list any implementing standards. (RL/REG-98-01, *DOE Regulatory Unit Evaluation Report of the BNFL Inc. Safety Requirements Document*, March 1998, DOE Office of Radiological, Nuclear, and Process Safety Regulation of the TWRs Privatization Contractor, Richland, Washington)

Certification

The SRD continues to identify a recommended set of standards that, when properly implemented, will provide adequate safety, comply with all applicable laws and regulations, and conform to top-level safety standards.

Certification that the SRD identifies a set of standards that continues to provide adequate safety, complies with all applicable laws and regulations, and conforms to top-level safety standards is based on adherence to the DOE/RL-96-0004 standards identification process and successful completion of review and confirmation by the PSC.

RPP-WTP Manager of Operations /Designee

Date